

ABSTRACT

A centrifugal pump pumps well fluid with a high gaseous content by conditioning the well fluid with a conditioning impeller and conditioning diffuser design for use with gaseous well fluid. The conditioning impellers have vanes that are curved with a leading edge that is rotationally forward and axially below, or upstream, of a trailing edge. The outer end of the leading edge is rotationally forward of the inner end of the leading edge, which forces the well fluid radially inward and mixes the gas and liquids in the well fluid. The conditioning diffusers have blades that are curved with a leading edge that is rotationarily rearward and axially below a trailing edge. The blades are portions of a sphere, with a concaved side receiving well fluid from the conditioning impellers. The spherical shape forces the well fluid radially inward and axially upward.